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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,621	01/11/2002	Hiroaki Kohno	02139.000028	8091

5514 7590 12/08/2003

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EXAMINER	
CEPERLEY, MARY	

ART UNIT	PAPER NUMBER
1641	3

DATE MAILED: 12/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/030,621	KOHNO ET AL.	
	Examiner	Art Unit	
	Mary (Molly) E. Ceperley	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-53 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-53 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 1/2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1) There is no indication of how "claim 13. (Amended)" {and claims 21-26, 30, 36, and 38} has been amended.

2) Although specific claims are cited in the rejections below, these rejections are also applicable to all other claims in which the noted problems/language occur.

3) The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4) Claims 1-53 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The instant claims require the use of monoclonal antibodies which have distinctively defined specificity and cross-reactivity characteristics. Given the current state of the art with regard to monoclonal antibody production, however, there can be no reasonable expectation that one skilled in the art could produce the claimed, uniquely reactive monoclonal antibodies without undue experimentation. Additionally, because it is not clear that the hybridoma cell lines FERM BP-6837 and FERM BP-6836 (claims 11 and 12) and monoclonal antibodies KTM-240 and KTM-249 (claims 4 and 6) are known and publicly available or can be reproducibly isolated from nature without undue experimentation, and because the best mode disclosed by the specification requires the use of these monoclonal antibodies and hybridomas, suitable deposits of these monoclonal antibodies and hybridomas for patent purposes are required. Without publicly available deposits, one of ordinary skill in the art could not be assured of the ability to practice the invention as claimed.

Factors to be considered in determining whether undue experimentation is required are summarized in *In re Wands* (858 F2d 731, 737, 8 USPQ2d 1400, 1404 ((Fed. Dir. 1988)). The factors most relevant to this rejection are the scope of the claim, the amount of direction or guidance provided, the unpredictability in the art and amount of experimentation required to enable one of skill in the art to practice the claimed invention.

The amount of guidance or direction needed to enable an invention is inversely related to the amount of knowledge in the state of the art as well as the predictability in the art (*In re Fisher*, 427 F.2d 833, 839, 166USPQ 18, 24 (CCPA 1970)). In view of the lack of sufficient guidance in the specification and the limited number of working example, the unpredictability in the art and the breadth of the claims, it would take an undue amount of experimentation for one skilled in the art to practice the invention as claimed.

Applicants' attention is directed to *In re Lundak*, 773 F.2d. 1216; 117 USPQ 90 (CAFC 1985) and 37 CFR 1.801-1.809 for further information concerning deposit practice.

5) The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6) Claims 1-53 are rejected under 35 USC 112, second paragraph, as being indefinite and confusing for the following reasons.

a) Claim 2 confusingly designates both an antibody and a hybridoma which produces the antibody by a single designation, "KTM-205". A similar problem also exists for claims 4 and 6.

b) Claims 13-27 and 36-53 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the

steps. See MPEP § 2172.01. The claims provide for the use of a trichothecene derivative in an immunoassay, but, since the claim does not set forth any steps other than the reaction of an antigen with an antibody with no detection or correlation steps recited, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

c) Claim 21 is directed to "a method for determining the total amount of DON, NIV, T-2 and derivatives thereof" which comprises "calculating the total amount from the value" obtained using two different monoclonal antibodies. However, there is no recited step which correlates the two "values"(?) to the determination of the "total amount" of the analytes in the sample. See also, claim 42.

d) The claims are indefinite in making designations such as "formula (I)" without defining the formula (see, for example, claim 35). At a minimum, a reference must be made to a preceding claim in which the designated formula appears.

e) "Method" claims 51 and 53 improperly depend from "kit" claims 32 and 33 respectively.

7) 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8) Claims 13-27 and 36-53 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth the required steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd. App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

9) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10) Claims 1-53 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over each of Nicol et al (AX), Casale et al (AU), Abouzied et al (AS), Ohtani (AV), Abouzied et al {J. Food Protection, 54, 288-290 (1991)}, Sinha et al {J. Agric. Food Chem., *43*, 1740-1744 (1995)}, Chu et al (AA), Fan et al {Appl. And Environ. Microbiol., 2959-2963 (1988)}, Pauly et al {Biol. Chem. Hoppe-Seyler, *369*, 487-492 (1988)}, or Chu et al {Appl. And Environ. Microbiol. 104-108 (1979)}.

Each of the references describes the preparation of monoclonal antibodies which have specificity for trichothecene mycotoxins including the derivatives designated as deoxynivalenol (DON), nivalenol (NIV), and T-2 toxin. The prior art antibodies are produced using trichothecene hapten derivatives which may be substituted at the 3-, 4, -8, or –15 ring positions (see Abouzied et al, J. Food Protection, 54, 288-290 (1991) for the numbering of trichothecene ring members); these haptens are conjugated to immunogenic carriers, the resulting immunogens being used for the conventional immunization and preparation of the corresponding monoclonal antibodies from hybridomas, the antibodies being useful in immunoassays to detect trichothecene derivatives.

See the following prior art trichothecene immunogens used to prepare monoclonal antibodies:

i) Nichol et al (AX): abstract and Fig. 1, 3- and 15-position deoxynivalenol haptens ;

ii) Casale et al (AU): abstract and Figure 1, 3-*O*-hemisuccinyl-DON ;

iii) Abouzied et al (AS): abstract and 3-position derivatized DNIV;

iv) Ohtani et al (AV): abstract ; Table 1, T-2/protein conjugates ; Fig. 1 ;

v) Abouzied et al (J. Food Protect.): DON-HS page 288, last paragraph through page 289, first paragraph;

vi) Sinha et al (J. Agric. Food Chem.): abstract; 1-DON-BSA;

vii) Chu et al (U.S. patent): col. 3, line 50 – col. 4, line 62;

viii) Fan et al: abstract, 3-acetyl-neosolaniol-hemisuccinate/BSA ;

ix) Pauly et al : Summary, diacetoxyscirpenol-hemiglutarate/BSA;

x) Chu et al (Appl. and Environ. Microbiol.) : T-2 hemisuccinate/BSA conjugate.

In the absence of evidence to the contrary, the antibodies of the prior art references are considered to inherently possess the same specificity and cross-reactivity characteristics as the monoclonal antibodies of the instant claims and therefore the prior art antibodies are considered to anticipate the antibodies of the instant claims. For both the claimed and prior art antibodies the basic multi-ring trichothecene structure constitutes the epitope recognized by the antibody. It is noted that as a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith. *In re Brown*, 459 F.2d 531, 535; 173 USPQ 685,688 (CCPA 1975).

The claimed methods of preparation of the monoclonal antibodies, hybridomas which produce the monoclonal antibodies, and the methods of use of the monoclonal antibodies in immunoassays for trichothecene derivatives are all conventional in the art and are either specifically described by the references (e.g. for the conversion of one hydroxy group to an acyl group (claim 42), see Chu et al, col. 4, lines 4-6) or constitute obvious variations in parameters which are routinely modified in the art (e.g. equivalent types of immunoassays: ELISA of Nicol et al; RIA of Chu et al) and which have not been described as critical to the practice of the invention. The packaging of reagents in kit form, as claimed, is an obvious expedient for ease and convenience in assay performance.

11) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary (Molly) E. Ceperley whose telephone number is (703) 308-4239. The examiner can normally be reached from 8 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long V. Le, can be reached on (703) 305-3399. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4556 or (703) 305-3592.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

November 28, 2003

Mary (Molly) E. Ceperley
Primary Examiner
Art Unit 1641